



Newsletter of the
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New Sustainability E-journal Debuts

Sustainability: Science, Practice, & Policy, a new peer-reviewed, open access journal, launched publication in April. Accessible at <<http://ejournal.nbii.org/>>, it provides a platform for the dissemination of new practices and for dialogue emerging out of the field of sustainability. The new electronic journal is published as

part of a government/private industry partnership between the National Biological Information Infrastructure (NBII) and NBII partner CSA. The purpose of this partnership is to develop a Sustainability Science database that examines the countless interactions of all living entities, especially humans, with the earth and its environment.

“This is an important endeavor as it aims at answering fundamental questions on what prevents the wide replication of best known practices in sustainable development,” wrote Klaus Töpfer, executive director of the United Nations Environment Programme. “I hope that the journal will catalyze debate between different disciplines that include practitioners and policymakers in order to increase our understanding of the challenges that we face in making sustainable development a reality.”

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SWIN-WAFER: Your Source for Fire and Water Data in the Southwest

The arid Southwest is home to an incredibly diverse natural environment, a mosaic of land ownership, and a rapidly growing population. Balancing the conflicting demands on natural resources requires access to the best available scientific information. To address these critical information needs, the NBII Southwest Information Node (SWIN) development team has produced the Water and Fire Environmental Resources (WAFER) application.

Determining the information needed to make science-based decisions was a first step in the development process. In 2002, the SWIN development team began working with the Southwest Strategy (SWS) to identify and prioritize key issues and associated

information needs in the region, which includes Arizona, Colorado, Nevada, New Mexico, and Utah. The SWS is a consortium of federal, state, tribal, and local agencies that work in collaboration to facilitate scientifically based approaches to enhance community vitality and resolve resource conservation and management issues in the Southwest. By 2003, the SWS agencies had identified water resources and wildland fire as top-priority environmental challenges for the region, and the development team went to work.

SWIN-WAFER was developed by the U.S. Geological Survey's Fort Collins (Colorado) Science Center in partnership with the New Mexico State University Laboratory
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for Environmental Spatial Analysis. The application serves metadata about water and wildfire data sets from federal, state, local, and tribal agencies. Metadata information available through SWIN-WAFER includes the type of data in the data set, the format (e.g., ArcInfo data layer, comma-delimited text file), the time period covered, the spatial area covered, associated Web or FTP sites, contact information for the agency, and abstract information. Current data sets cover data related to fire events (start points, perimeters, burn severity), fire history, prescribed burn opportunities and plans, fuel treatments, fire risk, current and historical drought conditions, climate history, weather conditions, daily stream flows, storm events and lightning strikes, surface and groundwater locations and depths, and aquifer and watershed boundaries and conditions.

Users can access metadata records via a full-text search capability or an interactive map viewer. In the viewer, selecting a point of interest in the southwestern United States reveals

a list of all data set records whose study areas intersect that point. Once a record is found, users may read the full metadata record, view the extent of the data set study area in an interactive map viewer, and download the data set if it is available online. For example, searching for “Antelope Fire” returns a metadata record for a burn severity satellite imagery data set for the 2002 Antelope Fire in Wupatki National Monument. Clicking the “zoom map” link under the returned record zooms the interactive map viewer to the extent of the Antelope Fire data set.

This fiscal year, the development team will complete the application by identifying and providing additional data sources and hosting



Photo credit: Craig B. Allen

Prescribed fire in the Bandelier Wilderness, New Mexico.

Access

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Be sure to check out Access on the Web at <<http://www.nbii.gov/about/pubs/news>>.

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the SWIN-WAFER data layer via the OpenGIS WMS (Web Mapping Service) protocol, so that interested users can use the SWIN-WAFER GIS layer in their own GIS software.

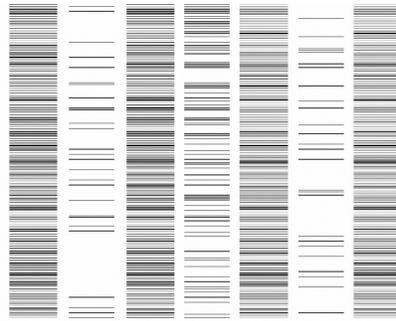
By compiling information on available data related to fire and water resources from a variety of sources into one reference site, SWIN-WAFER enables resource managers, policymakers, landowners, and other decision-makers to quickly identify data sets that meet their individual needs and inform their planning and management decisions in these critical areas. For more information, contact Julie Prior-Magee at 505/646-1084 or e-mail <jjpmagee@usgs.gov>. To access WAFER and other SWIN applications, visit <<http://swin.nbii.gov/applications.ac>>. 

Did You Say, “Barcoding Life”?

Scientists have taken the concept of barcoding, as seen in stores everywhere, to a new level. They now hope to use it to identify organisms and help describe the relationships among species.

“Barcoding life” is the discovery of Paul Hebert of the University of Guelph in Ontario (see <<http://www.barcodinglife.com/>>). Simply put, a genetic barcode is a relatively short region of a gene that changes just rapidly enough to be an efficient method for distinguishing and identifying species. It has the potential to become a rapid and affordable way of documenting species diversity, and providing non-specialists with a way to identify specimens to the species level. Right now, cytochrome c oxidase 1 (‘CO1’) is an excellent candidate for most animal species. A similar region is being sought for plants.

The Consortium for the Barcode of Life (CBOL) is an international movement of 70 natural history



Hermit Thrush American Robin Bumblebee Honey Bee

The “Barcode of Life” shows similarities and differences between species.

museums, herbaria, government agencies, and research organizations devoted to developing the approach. Of central importance is the development of an open-access database of genetic barcode sequences that connects species names with museum voucher specimens, from which the gene sequence was obtained. CBOL’s mission is to develop and promote the use of short gene

sequences from standard positions in the genome as a tool for rapid species identification. This application would have enormous benefit to customs inspectors, field biologists, public health officials, and others who may need to identify a species with only a small amount of tissue.

GenBank at the National Institutes of Health has offered to host the database. The Integrated Taxonomic Information System (ITIS) and the Species 2000 and ITIS Catalogue of Life have been suggested as providers of the highest quality scientific name linkages for the project.

The NBII provided partial support for two recent workshops on barcoding life. One workshop sought expert information on coordinating museum and library collections with barcoding and the other was a general meeting of the CBOL member organizations. The NBII and ITIS are member organizations in CBOL.

For more information, contact Michael Ruggiero, ITIS Director, at <ruggierm@si.edu>. 

E-Journal (continued from page 1)

The e-journal includes peer-reviewed full-text articles, guest editorials, and community essays. The guest editorial in the premier issue is by Edward O. Wilson, Pellegrino University Research Professor, Harvard University.

Each issue presents a symposium exploring the sustainability issues relating to the topic. For the inaugural issue, the symposium explores “Sustainable consumption in national context.”

Articles in the first issue include:

- “Sustainable consumption in national context: an introduction to the symposium,” by Maurie J. Cohen (New Jersey Institute of Technology),
- “The politics of sustainable consumption: the case of the Netherlands,” by Susan Martens and Gert Spaargaren (Wageningen University, The Netherlands),

- “Sustainable consumption à la française? Conventional, innovative, and alternative approaches to sustainability and consumption in France,” by Samy Sanches (King’s College London, UK),
- “The new politics of consumption: promoting sustainability in the American marketplace,” by Maurie J. Cohen, Aaron Comrov, and Brian Hoffner (New Jersey Institute of Technology),
- “The role of local ecological knowledge in sustainable urban planning: perspectives from Finland,” by Vesa Yli-Pelkonen and Johanna Kohl (University of Helsinki, Finland),
- “Integrated water resources management: evolution, prospects and future challenges,” by Muhammad Mizanur Rahaman and Olli Varis (Helsinki University of Technology, Finland), and
- “Sustainability science – and what’s

needed beyond science,” by Paul H. Reitan (University of Buffalo, USA).

Complete issues of *Sustainability: Science, Practice, & Policy* will be published twice a year and are available at no charge. In addition, articles for issues in progress will be posted immediately after completing the peer-review and editorial process.

The NBII <<http://www.nbii.gov>> is a broad, collaborative program to provide increased access to data and information on the nation’s biological resources. The NBII links diverse, high-quality biological databases, information products, and analytical tools maintained by NBII partners and other contributors in government agencies, academic institutions, non-government organizations, and private industry. CSA <www.csa.com> is a leading producer of bibliographic citation databases and Web resources databases. 

It's Easier Than Ever to Follow the Birds

A bird field guide will tell you, with tiny maps, where the birds are. But can you say for certain whether the magnolia warbler has built its nest in your neighborhood? Or whether that red-tailed hawk nest in the neighbor's sycamore is unusual?

In 2005, the NBII Bird Conservation Node continues to support the development of Web sites, tools, and applications that increase access to data on North American birds and facilitate integration of the data across geographic scales. Earlier this year, USGS Patuxent Wildlife Research Center made available online the North American Breeding Bird Atlas (BBA) Viewer <http://mbirdims.fws.gov/nbii_bba/> and BBA Explorer <<http://www.pwrc.usgs.gov/bba/>>, providing access to results from multiple state and provincial Breeding Bird Atlas projects. These atlases are population surveys that assess the distribution of breeding birds based on a "block" system, with blocks about 2-3 miles on a side.

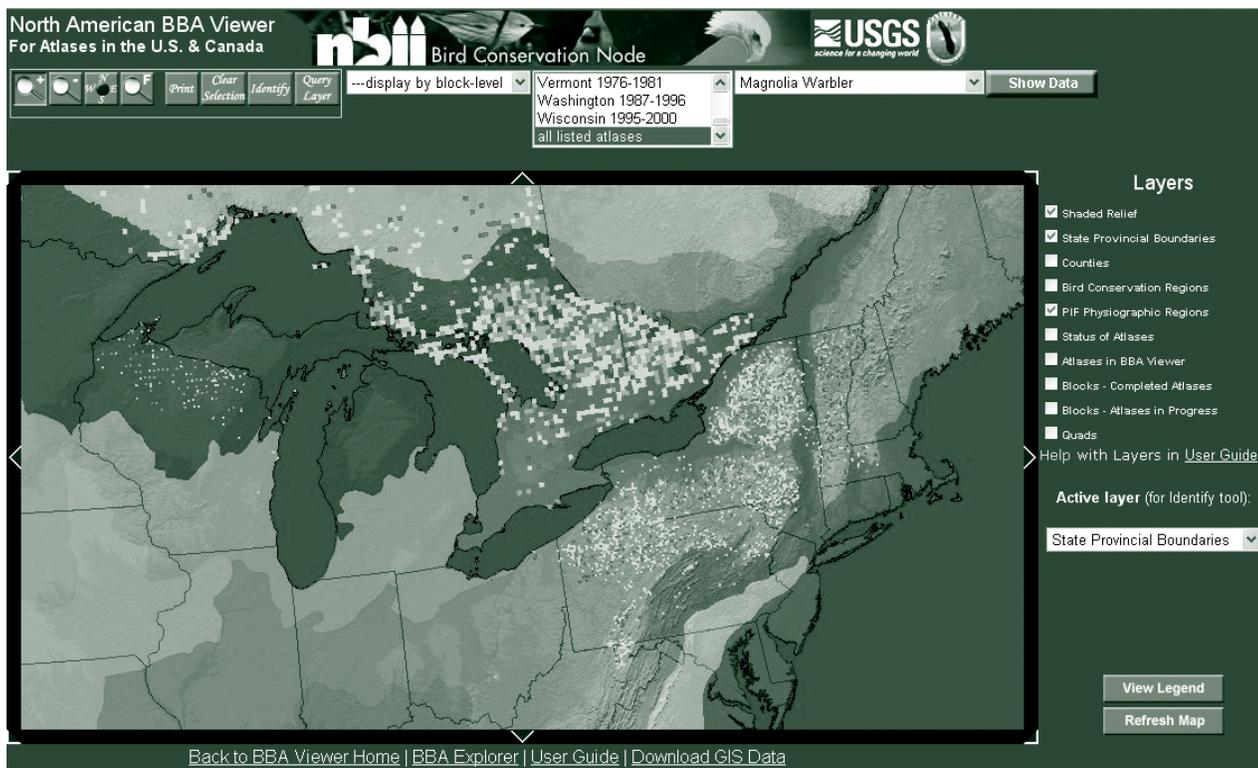
To discover whether a species nests in your local area, a breeding bird atlas

is often the best source of information. If you don't own the published atlas or want to look at data from multiple atlas projects, you now have help. The BBA Viewer is a mapping application that allows users to map species results from multiple Breeding Bird Atlases in North America for the first time. In addition to these maps, the BBA Explorer Web site allows users to learn about methods used in each Breeding Bird Atlas project, and to retrieve Atlas project results in a tabular form by species, block, or region (e.g., by county). These tools are part of a suite of tools, including BBA Manager, facilitating data management and display of BBA results, from data entry by Atlas volunteers to review by Atlas project coordinator to display of final results in maps or tables.

The online tools are intended to complement the final publications themselves (which provide informative analyses and discussion) and, as of May 2005, the BBA tools contained data for 16 states and one Canadian province. Additional states have

expressed interest in participating in this effort to develop a continental repository for Breeding Bird Atlases in North America that increasingly could serve as a resource for regional and national bird conservation planning and evaluation.

Also made available online earlier in 2005 by the Institute for Bird Populations is an update to the Avian Demographics Query Interface <<http://www.birdpop.org/nbii/NBIIHome.asp>>, a data retrieval Web site providing bird population demographic results from the Monitoring Avian Productivity and Survivorship Program. Updated survival rate estimates and productivity indices based on ten years (1992-2001) of bird banding data are now available online for more than 150 species of North American landbirds. These landbird demographic results can be retrieved via the Avian Demographics Query Interface by species and region -- and are a useful information resource that is not available elsewhere. 



North American Breeding Bird Atlas Viewer.

Invasive Species Toolbox

Do you have news about an invasive species project that you would like to share through this column? The Toolbox is a collection of useful items and highlights related to invasive species information management issues. Please send any ideas or suggestions you might have about Toolbox columns to asimpson@usgs.gov or esellers@usgs.gov and cc: the Access editor ron_seplic@usgs.gov.

Texas Forest Threats Project

The Texas Forest Threats Web portal and tracking database http://www.texasforestpest.org compiles information describing invasive species that threaten the forested habitats of Texas and makes that data available to the public via the Internet. It is a collaborative effort between the Texas Forest Service, the Lady Bird Johnson Wildflower Center, and the Central Southwest/Gulf Coast Information Node at the Houston Advanced Research Center.

The portal includes an ArcIMS online mapping application to provide users with county-level occurrence data for 44 species of plants considered to be non-native, invasive forest threats. Fact sheets with detailed information on more than 50 invasive species are also provided. To facilitate early reporting of new species occurrences, the application helps users in Texas identify the nearest contact person by including the locations of all Texas Forest Service offices.

EcoLibrary Being Built Through Discover Life Partnership

Designed to help people of all ages (especially teachers and students) learn more about the world in which we live, the EcoLibrary is a product of Discover Life's partnership with

biologist Dan L. Perlman of Brandeis University. All of the EcoLibrary materials are available for free download and use as long as they are used for non-commercial purposes.

People learn in many different ways, and EcoLibrary supports different learning styles. It currently contains a database of several hundred images with associated text. In the near future, case studies, maps, curriculum ideas, lesson plans, and interactive teaching materials will be added.

See http://www.discoverlife.org/ed/ecolibrary/ for details. The invasive species module can be selected under character 7, human impacts. Among other features, users can present Web slide shows of images and text from Discover Life.

National Geographic's Strange Days on Planet Earth Web Site Features Invaders

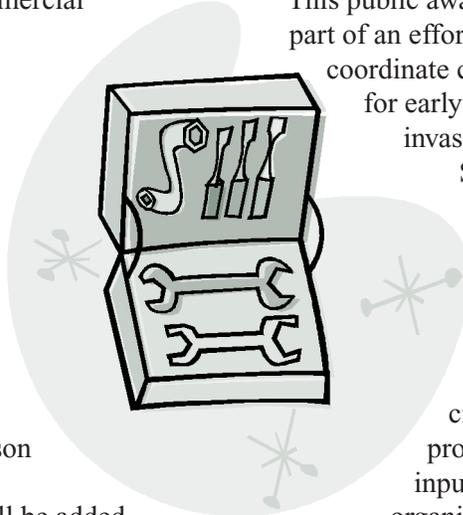
The Invaders episode of the four-part PBS series, which premiered in April — National Geographic's *Strange Days on Planet Earth* — introduced millions of Americans to the growing problem of invasive species. The online Invaders Interactive House, developed as part of the extensive PBS Web site that supports the series, aims to increase awareness about invasive species in our own backyards. The interactive house teaches players how their actions in and around their homes can have unintended effects. Players must first find ten clues hidden in and around the house and answer a related question for each. The more answers they get right, the fewer invasive

species will be introduced into the neighborhood. See how you score at http://www.pbs.org/strangedays/interactivehouse/.

This public awareness tool is part of an effort to educate and coordinate citizen volunteers for early detection of

invasive species. Sea Studios Foundation awarded grants to five consortium partners to create and implement invasive species citizen scientist programs, with input from many organizations, including

the NBII and USGS. Grant recipients include the Missouri Botanical Garden, the Lady Bird Johnson Wildflower Center, the New England Aquarium, the North Carolina Museum of Natural Sciences, and Seattle's Woodland Park Zoo. The first data from these efforts are expected to reach the National Institute of Invasive Species Science by late summer, for inclusion in its database. 



2005 NBII All-Nodes Meeting

This year the NBII All-Nodes Meeting will be hosted by the Southwest Information Node and held in Albuquerque, NM, the week of October 24. We'll provide meeting highlights in subsequent issues of *Access*.

NBII Metadata News: Training, Standards, Clearinghouse

Learning the fundamentals of creating geospatial/biological metadata – the Federal Geographic Data Committee (FGDC) standard, the Biological Data Profile, and the best tools to choose for your organization – can be a daunting task...until you attend a metadata workshop put on by the NBII.

The NBII hosted its first metadata training course of the year on March 3-4, in Palisades, NY. The workshop was held at the Center for International Earth Science Information Network, the lead partner for one of our newest NBII nodes: the Northeast Information Node <<http://nin.nbii.org/>>. The workshop was full, with 23 participants representing 13 different organizations. The instructor taught an informative class that guided students through the complex maze of understanding scientific metadata. Participants left the course with a binder of information about federal metadata standards, a CD full of useful metadata links, and the confidence to get metadata successfully started at their organizations.

Interested? There are more NBII Introduction to Metadata Workshops offered this year:

- June 16-17: Arlington, VA – sponsored by the NBII and NatureServe, and
- August (TBD): Seattle, WA – sponsored by the NBII and the U.S. Army Corps of Engineers.

Contact Viv Hutchison, NBII Metadata Coordinator, for more information and registration materials. E-mail <vhutchison@usgs.gov> or phone 206/526-6282, ext 329.

Train the Trainer

In addition to introductory workshops, once a year the NBII hosts a Train the Trainer course that prepares participants to present their own “Introduction to Metadata” workshop. There are only 12 spaces available for

this popular course:

- June 28, 29, 30: Denver, CO – *Train the Trainer Workshop* – sponsored by the NBII and the National Oceanic and Atmospheric Administration.

This three-day intensive, interactive course covers basic training concepts and skills as a foundation to address challenging metadata subjects. The course enables the new trainer to address metadata in a lively, invigorating, and memorable workshop. It enables the agency to define metadata training goals, content, and approaches to implement metadata training programs specific to their data community. This course presents: what is training; how to quickly engage the audience in metadata; what are the NBII-FGDC’s metadata learning goals and objectives; and why goals and objectives are critical to agency-wide training implementation. Learning styles, training, and visual aids along with presentation styles are presented as means to connect with broad workshop audiences. The workshop includes applying audience analysis to: develop the workshop content, duration, and approach; determine facility requirements; and to assure a successful and meaningful workshop.

The NBII-FGDC metadata curriculum is introduced to the workshop participants as the subject area for presentation and exercise development areas. Participants apply their newly acquired trainer skills to develop a 20-minute metadata presentation, which includes an interactive exercise on a metadata concept, goal, or objective. The instructors and participants critique the presentation, the presenter, and the learning exercise. With the information and exercises provided and skills developed from this workshop, the participants will be able to:

- Implement metadata training

programs to address data issues specific to their agencies and data partners.

- Build a metadata training network to support metadata implementation.
- Develop and present an interactive, energized, and memorable metadata workshop.
- Construct a workshop around the participant’s expectations and learning styles to make the metadata content memorable.
- Develop lesson plans and training modules and exercises for reuse by other trainers and contributing to NBII and FGDC metadata training resources.
- Discover training tips and methods from experienced metadata creators and trainers to increase metadata creator ability.

This course is filling up quickly. Please contact Viv Hutchison for a registration form! Limited travel assistance is available for those who need it.

The workshops mentioned in this article have been made possible through the FGDC Cooperative Agreements Grants. If your organization is interested in applying for this grant that encourages metadata development in several areas, learn more at their Web site <www.fgdc.gov>. The deadline for applications is June 16.

Clearinghouse Update

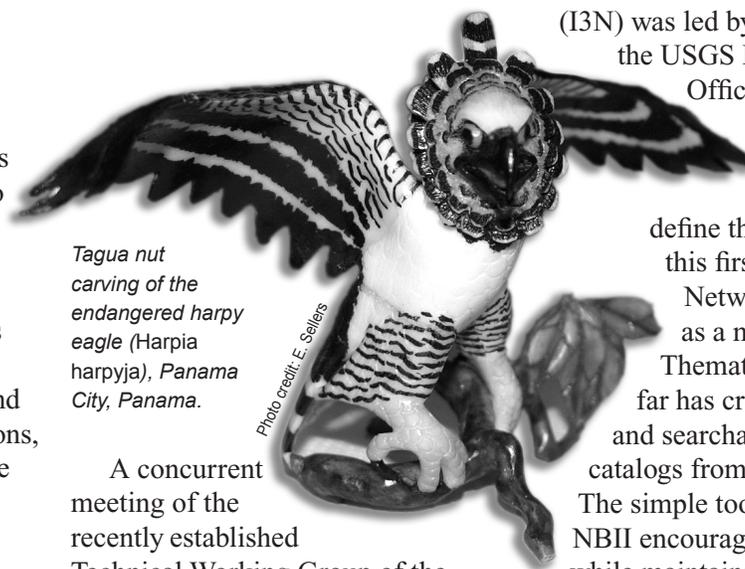
As a result of metadata training, the NBII Clearinghouse is growing through new partnerships and compounding records. We now have 23 participating partners, 25 “nodes,” and are successfully harvesting over 17,000 records. If you are interested in joining the Clearinghouse, contact Viv Hutchison. More information is available at our Web site <<http://www.nbii.gov/datainfo/metadata/clearinghouse/>>. 

International Connections

Fourth Council Meeting of the Inter-American Biodiversity Information Network (IABIN)

From April 6-8, biodiversity information experts and stakeholders from the Americas met in Panama to participate in the Fourth Council Meeting of IABIN. In addition to 24 national Focal Points for IABIN, participants included representatives from the Global Biodiversity Information Facility, international and national non-government organizations, academic institutions, and the private sector. The enthusiasm of the new Secretariat staff was evident during this successful and very productive meeting. Participants reaffirmed that scientific knowledge and technological know-how have a vital role in the conservation of biological diversity in the Western Hemisphere. They agreed on the next steps for scientific and technical information exchange through the IABIN Catalog and the six Thematic Networks (species, specimens, ecosystems, pollinators, protected areas, and invasive species). Presentations, news releases, and other documents from the meeting are available on the IABIN Web site <www.iabin.net>, and further information is available on the U.S. Web site for IABIN <www.iabin-us.org>.

Gladys Cotter, USGS Associate Chief Biologist for Information, was reelected to a second term as IABIN Council Chair. IABIN was created in 1996 as an initiative of the Summit of the Americas held in Santa Cruz, Bolivia, to provide the networking information infrastructure (such as standards and protocols), tools, and biodiversity information content required by the countries of the Americas to improve decision-making, particularly for issues at the interface of sustainable development and biodiversity conservation.



Tagua nut carving of the endangered harpy eagle (Harpia harpyja), Panama City, Panama.

Photo credit: E. Sellers

A concurrent meeting of the recently established Technical Working Group of the IABIN Invasives Information Network

(I3N) was led by Andrea Grosse of the USGS Biological Informatics Office. Representatives from 10 countries participated actively in helping to define the next activities for this first IABIN Thematic Network that will serve as a model for other Thematic Networks. I3N so far has created a distributed and searchable network of data catalogs from a dozen countries. The simple tools developed by the NBII encourage interoperability while maintaining the provider's control over its information.

U. S. Signs Joint Declaration on Science and Technology Cooperation

On January 7, the U.S. Department of State and Cape Verde signed a joint declaration regarding science and technology cooperation with the USGS participating as the initial cooperator under this collaborative Agreement. The joint declaration lays the foundation for science and technology partnerships, research projects, and capacity building opportunities in several areas. In the coming months, the USGS will initiate cooperation with interested parties in Cape Verde (such as universities, private companies, and non-governmental organizations) to conduct an information and infrastructure needs assessment. The assessment

will aid in the development of a Cape Verde Islands National Resources Information System that will help support the conservation and restoration of ecological and biological resources. USGS work on these activities is being coordinated out of the Biological Informatics Office, which also serves as the NBII National Program Office. 🇺🇸



Shown left to right at the Cape Verde Island signing: George Dragich, Director of Science & Technology Cooperation at Department of State; Paula Dobriansky, Under Secretary of State for Global Affairs; Dr. Doug Beard, USGS-NBII; Ambassador Brito of the Cape Verde Islands; Dr. Toral Patel-Weynand, USGS-NBII; John Turner, Assistant Secretary of State; and Dr. George Atkinson, Science Advisor to the Secretary of State.

Upcoming Events of NBII Interest

Association for Information & Image Management (AIIM) Expo, Philadelphia, PA.	May 17-19	Molecular Biology and Evolution Conference 2005, Auckland, New Zealand.	June 19-23
9th Annual Missouri River Natural Resources Conference, Pierre, SD.	May 22-25	Human Security and Climate Change: An International Workshop, Oslo, Norway.	June 21-23
International Conference on Enterprise Information Systems, Miami, FL.	May 24-28	Arctic Breeding Bird Ecology, Nome, AK.	June 21-28
96th Special Libraries Association (SLA) Annual Conference, Toronto, Ontario, Canada.	June 4-9	11th International Interdisciplinary Conference on the Environment, Orlando, FL.	June 23-25
Society of Wetland Scientists 26th Annual International Meeting, Charleston, SC.	June 5-10	2005 American Library Association (ALA) Annual Conference, Chicago, IL.	June 23-29
Birding by Ear, White Mountains, NH.	June 6-11	TMDL 2005, Philadelphia, PA.	June 26-28
Threatened, Endangered, and At-Risk Species on DoD and Adjacent Lands, Baltimore, MD.	June 7-9	Wildlife Disease Association 2005 International Conference, Cairns, Queensland, Australia.	June 26-July 1
7th Networked Knowledge Organization Systems (NKOS) Workshop, Denver, CO.	June 10-11	National Educational Computing Association, Philadelphia, PA.	June 27-30
Colorado: Tundra to Prairie, Boulder, CO.	June 10-14	National Education Association (NEA) Expo, Los Angeles, CA.	July 1-3
		9th World Multi-conference on Systemics, Cybernetics, and Informatics, Orlando, FL.	July 10-13



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